

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A method for allocating system resources among groups having entitlement values and maximum limits comprising:

allocating a computer system resource to active groups according to respective entitlement values;

determining an excess entitlement allocated to inactive groups;

calculating a scaling ratio for each group;

sorting active groups by their scaling ratios, creating a list of active groups in an increasing order;

~~traversing the list of active groups once~~ calculating an optimal distribution of the excess entitlement values to be reallocated to each active group by traversing once the list of active groups in the increasing order; and

~~performing a finite and bounded set of operations at each group after a single pass to reallocate~~ reallocating the excess entitlement values to the active groups according to the optimal distribution for each active group, wherein optimal values reallocated to the active groups are in proportion to the respective entitlement values, and wherein a total resource reallocated to each of the active groups does not exceed ~~without exceeding~~ a maximum limit for each of the active groups;

~~whereby the system resource reallocated to each of the active groups are scaled up from each group's entitlement value by a fixed ratio up to the group's maximum limit.~~

2. (original): The method of claim 1, wherein the maximal values for inactive groups is set equal to zero.

3. (canceled).

4. (currently amended): The method of claim 1 ~~3~~, wherein the scaling ratio is a ratio between the maximum limit and the entitlement value.

5. (currently amended): The method of claim 1 ~~3~~, wherein the step of reallocating comprises:

determining whether unprocessed groups can scale by the scaling ratio of a current group without exhausting unallocated resources; and

if the unprocessed groups can scale without exhausting the unallocated resources, then setting the maximal value of the current group equal to the maximum limit of the current group.

6. (original): The method of claim 5, wherein the step of reallocating further comprises:

if the unprocessed groups cannot scale without exhausting the unallocated resources, then scaling the unprocessed groups by the unallocated resources.

7. (original): The method of claim 3, further comprising processing the groups individually as sorted by the scaling ratios, whereby the groups having a higher maximum limit relative to their entitlement values are processed after groups having a lower maximum limit relative to their entitlement values.

8. (currently amended): A computer system for allocating system resources among groups having entitlement values and maximum limits comprising:

a memory; and

a software program stored in the memory, which software program

allocates a system resource to active groups according to respective entitlement values;

determines an excess entitlement allocated to inactive groups;

calculates a scaling ratio for each group;

sorts active groups by their scaling ratios, creating a list of active groups in an increasing order;

~~traverses the list of active groups once~~ calculates an optimal distribution of the excess entitlement values to be reallocated to each active group by traversing once the list of active groups in the increasing order; and

~~performs a finite and bounded set of operations at each group after a single pass to reallocate~~ reallocates the excess entitlement values to the active groups according to the optimal distribution for each active group, wherein optimal values reallocated to the active groups are in proportion to the respective entitlement values, and wherein a total resource reallocated to each of the active groups does not exceed
~~without exceeding~~ a maximum limit for each of the active groups;

~~whereby the system resource reallocated to each of the active groups are scaled up from each group's entitlement value by a fixed ratio up to the group's maximum limit.~~

9. (canceled).

10. (original): The computer system of claim 9, wherein the scaling ratio is a ratio between the maximum limit and the entitlement value.

11. (original): The computer system of claim 9, wherein the step of reallocating comprises:

determining whether unprocessed groups can scale by the scaling ratio of a current group without exhausting unallocated resources; and

if the unprocessed groups can scale without exhausting the unallocated resources, then setting the maximal value of the current group equal to the maximum limit of the current group.

12. (original): The method of claim 11, wherein the step of reallocating further comprises:

if the unprocessed groups cannot scale without exhausting the unallocated resources, then scaling the unprocessed groups by the unallocated resources.

13. (original): The computer system of claim 12, wherein the software program processes the groups individually as sorted by the scaling ratios, whereby the groups having a higher maximum limit relative to their entitlement values are processed after groups having a lower maximum limit relative to their entitlement values.

14. (original): The computer system of claim 13, wherein the step of reallocating further comprises, if a portion of the excess entitlement remains unallocated after processing all active groups, reallocating the portion to one or more active or inactive groups.

15. (currently amended): A software system comprising:

a tangible storage medium; and

a software program stored in the medium, which software program

allocates a system resource to active groups according to respective entitlement values;

determines an excess entitlement allocated to inactive groups;

calculates a scaling ratio for each group;

sorts active groups by their scaling ratios, creating a list of active groups in an increasing order;

~~traverses the list of active groups once~~ calculates an optimal distribution of the excess entitlement values to be reallocated to each active group by traversing once the list of active groups in the increasing order; and

~~performs a finite and bounded set of operations at each group after a single pass to reallocate~~ reallocating the excess entitlement values to the active groups

according to the optimal distribution for each active group, wherein optimal values reallocated to the active groups are in proportion to active groups' respective entitlement values, and wherein a total resource reallocated to each of the active groups does not exceed ~~without exceeding~~ a maximum limit for the groups;

~~whereby the system resource reallocated to each of the active groups are scaled up from each group's entitlement value by a fixed ratio up to the group's maximum limit.~~

16. (canceled).

17. (original): The computer system of claim 16, wherein the scaling ratio is a ratio between the maximum limit and the entitlement value.

18. (original): The computer system of claim 16, wherein the step of reallocating comprises:

determining whether unprocessed groups can scale by the scaling ratio of a current group without exhausting unallocated resources; and

if the unprocessed groups can scale without exhausting the unallocated resources, then setting the maximal value of the current group equal to the maximum limit of the current group.

19. (original): The method of claim 18, wherein the step of reallocating further comprises:

if the unprocessed groups cannot scale without exhausting the unallocated resources, then scaling the unprocessed groups by the unallocated resources.

20. (original): The computer system of claim 19, wherein the software program processes the groups individually as sorted by the scaling ratios, whereby the groups having a higher maximum limit relative to their entitlement values are processed after groups having a lower maximum limit relative to their entitlement values.

21. (cancelled).